

- a. Let us assume that Mr. G flips the coin 10 times. Furthermore, suppose he decided that if the 10 flips yield 7 or more heads, he will assume that the coin he found is his rare dime, whereas if the 10 flips yield fewer than 7 heads, he will assume that the coin he found is an ordinary coin. Calculate
- $$\alpha = P(\text{making type I error}) = P(\text{test will reject } H_0 \text{ when } H_0 \text{ is true})$$
- (If your statistically savvy side is saying “I smell Binomial distribution here” trust that instinct.)
- b. If Mr. G wants to reduce the size of α you got in part (a) what would you suggest that he do?
9. (15pts) The owner of a restaurant that is up for sale informs a prospective buyer that, not counting holidays, the average number of customers per Saturday evening is 100. To check owner’s claim, the prospective buyer counts the number of customer on 9 randomly chose Saturday evenings and finds a sample mean of $\bar{x} = 95$ customers and a sample standard deviation of $s = 10$.
- a. Should the prospective buyer reject the owner’s claim at the .05 level of significance? (Set up a hypothesis test to test this and assume that the distribution of number of customers is normal.)
- b. Would your answer to part (a) be the same if $s = 4$?
- c. If your decision in part (b) is different than your decision in part (a), explain why this might have happened?